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ABSTRACT

A small group of top-level experts on information and productivity and other key decision makers met to discuss information and productivity and its implications for education. The meeting was the first in a proposed series of bilateral meetings between individuals in the library/information field in the United States (US) and the United Kingdom (UK). The 19 invited participants were selected for their expertise in the area of productivity, primarily in research and information policy. Two overview papers were presented, providing a summary of research, issues for discussion, and descriptions of the key agencies and organizations involved. Participants then took part in a series of discussions concentrating on four themes: (1) access to information; (2) technology, innovation, and productivity; (3) management of information; and (4) national and international information policies. The document includes background information on the seminar; an executive summary; a description of the seminar structure; a summary of the debate with emphasis on consciousness-raising, education and training, and research and development; and recommendations for future action. Appendices provide a copy of the agenda, a list of the participants from both countries, references, and an outline of the issue topics that were addressed. (THC)

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INFORMATION AND PRODUCTIVITY

IMPLICATIONS FOR EDUCATION AND TRAINING

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REPORT OF A JOINT UK - US SEMINAR HELD AT CRANFIELD, ENGLAND, 27-30 JULY 1984

INFORMATION AND PRODUCTIVITY - IMPLICATIONS FOR EDUCATION AND TRAINING

Report of a joint UK/US Seminar held at Cranfield, England,
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The opinions expressed in this report are those of the seminar participants and not necessarily those of the British Library and the National Commission on Libraries and Information Science.

This report was prepared jointly by the U.S. and the U.K. organizers of the Seminar; it was typed and printed in the U.K. by the British Library Research and Development Department.

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PREFACE

Sir Harry Hookway
(formerly Chief Executive, The British Library)
President, The Library Association

Co-chairmanship of the UK:US Seminar was practically my last official engagement before I retired as Chief Executive of the British Library and I am extremely pleased that such a positive and worthwhile activity saw out that appointment.

The British Library, as the national library for the UK, obviously has great concerns about the provision and effective use of information of all types and its Research and Development Department, no less than the major operational Divisions, has developed strong links with other countries in order to attack, in cooperation, various problems that are too great to be tackled on a purely national basis.

Since we share a common language and, to a great extent, a common culture, this greatly welcomed bilateral Seminar was approached with great anticipation. I think it is true to say that none of the attendees were disappointed with the results. We now have a positive base for combined action in this very important field.

In both our countries, there is an increasing realisation that the acquisition of effective information handling skills is necessary for productive work and leisure. Perhaps for too long the stress has been on the application of computer skills without due regard to the problems of handling the information itself. This is now changing and public bodies and governments are setting up mechanisms for dealing with this problem. Educators and others must ensure that the population is aware of the positive value of training in information skills and their application to improving future economics. It is interesting and right that the Seminar covered the need to apply information skills at all levels of the community from the schoolchild to the practitioner and scholar.

Even though I am no longer directly concerned with our national library I shall look with renewed interest towards the implementation of the very worthwhile programme set out by the Seminar participants.

INTRODUCTION

Elinor M Hashim
Chairman, National Commission on Libraries
and Information Science

The National Commission on Libraries and Information Science (NCLIS) was established by law in 1970 to advise both the US President and Congress on matters relating to national library and information policies and plans. Such a broad and far reaching mandate implies the responsibility to keep up with - indeed to anticipate - the issues and topics that will have the greatest impact on the people of the United States both now and in years to come. Recently it has become increasingly obvious that one of the major areas of concern for the Commission must be the relationship between the effective use of information resources and national productivity. In other words, the information age we live in demands that we find ways for persons, institutions, businesses, and society as a whole to "work smarter".

On the level of improving individual productivity, the Commission and other US leaders are trying to further awareness of the need for lifelong learning in finding and using information effectively. These skills are one of the major keys to personal success in the information age. For the increasing number of professionals embarking on information-related careers and for the business leaders who depend on their work, there exists a need to identify the skills and competences required by this newly recognised category of professionals. NCLIS and other leaders in the field are also trying to increase the level of awareness and appreciation of the role and value of information in the national economy. Since more than 50 per cent of the GNP derives from information-related activities in the US, it is essential that this crucial economic factor be recognised and integrated in national planning.

The first US/UK Seminar on Information and Productivity, held at the Cranfield Study Centre in July 1984, grew out of the recognition by leaders on both sides of the Atlantic that this area needs to be addressed in depth by the library/information field, government, and the private sector. Both the White House Conference on Productivity in the US and the Cabinet Office Information Technology Advisory Panel in the UK have already called for action to treat information resources as national strategic assets. The US/UK Seminar participants - themselves recognised information experts from all sectors -

focused on the topic in depth, developed a well-thought-out series of recommendations, and laid a strategy for immediate action. Since last July, the results of the Seminar have been disseminated widely in both countries, and a follow-up meeting has been held in the US to measure progress on the recommendations and chart further action. Progress has already been made on many of the recommendations. More extensive international activities, involving Canada and other countries, are envisaged for the future.

The Commission wishes to thank the British Library Research and Development Department, under the leadership of Brian Perry, for its support in hosting the first US/UK Seminar and its assistance in publishing this report. We hope that this will be the first of many cooperative projects between the British Library and the National Commission to further understanding of information-related issues..

EXECUTIVE SUMMARY

A small group of top-level experts on information and productivity and other key decision makers met on 27-30 July 1984 at the Cranfield Study Centre in Bedford, England, to discuss information and productivity and its implications for education. This meeting was the first in a proposed series of bilateral meetings between individuals in the library/information field in the US and the UK. It was sponsored by the National Commission on Libraries and Information Science (US), the British Library, and the Library and Information Services Council (LISC) (UK).

Co-chairmen for the meeting were Sir Harry Hookway (Chief Executive, the British Library) and Elinor M Hashim (NCLIS Chairman). The nineteen invited participants were selected for their expertise in the areas of productivity, primarily in research and information policy. Two overview papers were presented, providing a summary of research on information and productivity, issues for discussion, and descriptions of the key agencies and organisations involved. F W Horton (Information Consultant, Washington, DC) presented the overview for the US, and Brian Perry (Director, British Library Research and Development Department) presented the UK overview.

The participants then took part in a series of discussion sessions, concentrating on four theme areas: 1) access to information; 2) technology, innovation and productivity; 3) management of information; and 4) national and international information policy.

Attached are a copy of the agenda and a list of the participants from both the United Kingdom and the United States.

In his summary of the meeting, Wilfred L Saunders (Chairman, LISC) noted the following points.

The US/UK participants discussed productivity, which will enhance the quality of life for all citizens, and identified the problems of greatest concern. Most are the same in both countries, but it was agreed that we cannot assume that the solutions will be the same for both countries. The Seminar participants completed a very valuable "ground-clearing" process that will lay the foundation for future seminars. It quickly became apparent that it would be useful for this group to get together again.

The issues surrounding the value of information; information as a resource; and the under-utilisation of information were discussed. This is a time of major change - social, economic, and, especially, technological. There is a feeling of uncertainty. The barriers between formerly distinct professions are becoming blurred. Some of our educational institutions are not meeting the needs of their constituents. The reason services are under-utilised seems to have something to do with our image. The "problem" is seen as quite useful in marketing library/information services, implying or stating that a product or service can help solve the customer's problem.

In the area of education it has become clear that information skills need to be added to the "three Rs", perhaps by building these skills into the curriculum. The higher level of skills of intermediaries will still be needed and using an intermediary for complicated searches will be much more productive. How existing programmes can be adapted to meet these changing needs remains a challenge.

A summary of the recommendations follows:

I. CONSCIOUSNESS RAISING/AWARENESS

Recommendation 1 - Prepare a broad statement about the value of managing and using information effectively to improve productivity and the quality of life, using US and UK data to support this statement.

A. Role of the information professional

Recommendation 2 - Consolidate existing research that defines the competences required in the new information professional and the changing scope of the information professional's role. (Among recent studies in this area are: King Research Study; SPRU Study; Technical Change Centre work; Blaise Cronin's work.) Include findings on the importance of subject knowledge and the role of the intermediary. Disseminate widely to employers and educators.

B. Improve marketing of the profession and its products and services.

Recommendation 3 - Identify channels for promoting an appropriate image of the profession and its products and services.

C. Matching competences to needs

Recommendation 4 - Establish appropriate interactions between educators and the work place to match competences to the needs.

II. EDUCATION AND TRAINING

A. An explanatory statement is needed to include (a) distinctions between educational levels (e.g., primary, secondary, and tertiary - "post-secondary"); (b) distinctions between professional levels; and (c) changes in these levels.

B. Non-library/information science field.

Recommendation 5 - Because it is essential for everyone - from cradle to grave - to know how to find and use information effectively, encourage the explicit inclusion of these skills as a basic examinable part of the curriculum at all levels. Also, offer incentives (such as scholarships and prizes) to encourage bright students to enter the information field.

C. Library/information science - professional education and training

Recommendation 6 - Survey exemplary education and training models in the US and the UK and present their case studies in a report.

Recommendation 7 - Explore the idea of a regular summer school for library and information school staff and students who are identified as high achievers.

D. Continuing education is a high priority now and will continue to be a part of life for the entire career. A staff college for senior level people is needed.

Recommendation 8 - Identify the range of objectives of continuing education for the library/information science field, the required scope and coverage of such continuing education and the variety of means and methods (e.g., distance learning) by which such education can be achieved.

This should include attempts to link appropriate short courses with formal educational requirements and to coordinate total continuing education provision, and the goal of fostering Anglo/American cooperation in continuing education initiatives (e.g., through professional organisations).

III RESEARCH AND DEVELOPMENT

Recommendation 9 - Urge increased funding and support for research and development in the library/information science field, especially in the light of a shift to a more equal emphasis on both information and technology within the area of information technology in the UK. Encourage interdisciplinary involvement in conducting research and in providing funds from both the public and private sectors.

Possible groups to be urged include: National Science Foundation (NSF); National Endowment for the Humanities (NEH); Council on Library Resources (CLR); British Library Research and Development Department (BLRDD); and the Economic and Social Research Council in the UK.

Recommendation 10 - Provide support for follow-up on the King Research, Inc. study on competences to link with research on the value of information, and disseminate results in the UK and US.

Recommendation 11 - Establish a trilateral (US, UK, and Canada) information analysis centre for the information field, including such areas as costs, benefits, value, and productivity.

Recommendation 12 - Encourage research on how to improve productivity of information researchers. Suggest projects to identify areas in which information can be most helpful in improving productivity, especially for industry.

Recommendation 13 - Identify new areas where parallel research in US/UK is desirable and feasible.

Compile case studies of the successful application of information research results in both countries. A "Gordon-type" conference of policy-makers, funders, and researchers in this and related fields could explore opportunities for parallel research, including the sharing of research methodologies. The conference should focus on a transfer of research into actions (or development). Also consider possible programmes for the exchange of information researchers.

Recommendation 14 - Urge that methods be found to integrate information activities, research, and products into planning and research at a national level.

FUTURE DIRECTIONS - WHERE DO WE GO FROM HERE?

A. NCLIS and the British Library will send recommendations immediately to the appropriate organisations.

B. Joint published report to be issued.

C. The Seminar has been so valuable that it must be followed up in several ways, such as: 1) review of follow-up on recommendations; 2) new meetings on other topics; and 3) exchange of personnel.

US Participants

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Mr D Mannix
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REPORT

1. Introduction

The correct management of information resources, whether as a private or public good, is a common and topical concern in the United States and in the United Kingdom. But how does one quantify the value of information, how does one measure its contribution to productivity and GNP, and how does one develop, train and educate the current and future workforce to manage and use the resource effectively? These matters have been common concerns in the UK and the US over the past few years, but with the accelerated importance of information technology application in both countries, and with the publication of the report of the White House Conference: "Productivity and Growth"(1) in the US, the Cabinet Office report by the Information Technology Advisory Panel "Making a Business of Information" (2) in the UK, and the Government Response to that report(3), these concerns are now critical. With this in mind a restricted attendance Seminar was sponsored by the US National Commission on Libraries and Information Science and the British Library Research and Development Department in conjunction with the UK Library and Information Services Council. Nineteen people, ten from the UK and nine from the USA, gathered in Cranfield to consider the link between effective use of information and productivity growth, and how the new generation of information specialists need to be trained to ensure that this link is fostered for maximum effect on all aspects of UK and US life.

The delegates invited were chosen carefully to represent industry and academia but official representation from government bodies was avoided. The intention was to have a free-ranging and unfettered discussion of the factors which could lead to effective policy-making in both countries, to record conclusions of the discussion and if appropriate to set out recommendations to be set before the appropriate authorities in both countries.

2. Structure of the Seminar

After a welcome by Sir Harry Hookway and some introductory words by Ms Elinor Hashim and Professor Wilfred Saunders, two keynote papers set the scene for the weekend. Dr Woody Horton described the current priority information issues in the USA, emphasising the importance of managing the information resource effectively. His thesis was that the skills of information management are largely untaught at the moment. These skills will be acquired by necessity by people drafted into managers' jobs, but to acquire them in this haphazard way allows no scope for real leadership in the field and for strategic training of the new information work-force.

Mr Brian Perry explained the remit of the British Library Research and Development Department and its priority programmes, including the role of information in industry, investigation of the problems of forecasting manpower requirements and providing effective education and training. He also set in context the various agencies and organisations in the UK library and information sector, e.g. the role of the Office of Arts and Libraries, the role of the Department of Trade and Industry, and the role of the professional organisations.

After the background had been set by these keynote papers four session leaders (see programme) developed a sub-theme each:

1) access to information
2) technology, innovation and productivity
3) management of information
4) national and international information policy.

The two next session leaders (see programme) took up the main points from all previous sessions and reinjected them into the debate. After this distillation of the major points, Professor Saunders reanalysed the discussion and shaped it into conclusions and recommendations in the final summary sessions.

3. The debate

It soon emerged that there were common concerns in the US and the UK. It was recognised that finding and using information effectively had impact on not only the political economy but also on all aspects of life in today's society. The US delegation spoke of "lifelong learning", the British of "the importance of tradeable information", the US group of recognisable information input to productivity growth, the British of the role of the public library in purveying community information.

Recognising therefore that information resources rank equally with human and financial resources, how then can we plan effectively for their increased use? During the debate Professor Meadows suggested that the following three main thrusts were needed:

Consciousness raising/awareness
Education and training
Research and development

Consciousness raising

There is not enough awareness among the general or business public of the benefit of effective information use. As research findings in the States show (4) information effectively used can double productivity. If more industrial and business concerns were aware of this finding, maybe we would see some revolution in how industry collects, stores and accesses this information resource. There are plenty of tools and aids available to allow information systems to be installed immediately but there needs to be much more publicity, based on statistics and data describing the information sector and its impact, disseminated widely.

Education and training

Since one would have imagined that debate would concentrate on how to educate information professionals it was surprising and encouraging to observe how the debate ranged much more widely and recognised that training had to start in primary school and never finish. The concern that the young should be taught how to find and use information is all the more urgent now that computer training is being given.

Another priority area for action is to identify high-flyer information specialists now so that they can become the leaders of the next generation. This must be done with some urgency; intensive training programmes need to be devised, for example via special summer schools. But who is to teach these high achievers?

The discussion moved logically to the training of teachers in LIS schools and here again the most instant effect will be gained by summer school type intensive courses. And who then will teach these teachers? Apart from a few eminent authorities in LIS matters, training will have to be done by importing experts from other disciplines. This will require astute negotiation and administration and more than an element of healthy persuasion.

It is obvious that curriculum change in LIS schools needs to be radical but delegates acknowledged that their administrators knew the position only too well and were trying to solve it as quickly as possible. But with the best will in the world, change depends on retraining or replacing staff and this takes time.

High priority needs to be given to continuing education. Those in employment should be given specialist and intensive training if they are identified as high flyers, but in any case all in employment should have the chance of continuing education. There should be immediate research into the best methods to effect continued training of such a sizeable work-force.

What then of the training for the layman? It was recognised that productivity need not necessarily refer to commercial productivity only, but to personal productivity and usefulness. The general public needs to be trained to find information. Access should not be confined to the citizen who knows his way around the library and information system.

How does the schoolchild get attracted to library and information science work? The problem is that the varied nature of information work and its potential for an important and responsible career is not conveyed to school students at present. Careers advisors cannot be blamed as they are possibly aware only of the "library" career and not of all the other opportunities available to the student wishing to go into information work. There needs therefore to be a two-pronged programme - the careers advisors need to be informed and at the same time the students' imaginations need to be fired, possibly by initiating a series of essays and competitions leading to prizes and, perhaps, travel grants for schoolchildren.

Employers' appreciation and use of the information professional was also discussed. There are two problems. First, looking for a suitable candidate for an 'information' post, the employer is not always aware how to recruit, what qualities and training to look for. All too often candidates will be drawn from other professions (e.g. computer and management science); the special qualities and competences of information professionals are not appreciated. But then is this not the fault of the information profession for failing to publicise its own performance and potential? The quickest way of solving this problem is to encourage employers and educators to meet and exchange information on the competences needed in the work place and the current training given in the library and information service schools. The other, and perhaps more insidious problem is that of the employer under-utilising the information professional. When these experts are properly used within a company to access, analyse and present information the perverse result can be that their worth is perceived by management who transfer them to other non-information posts leaving the information manager with the task of training another batch of recruits.

Research and development

The third part of the Seminar discussion concentrated on the further research and development needed in the library and information field. There was quick recognition that sterling research was being carried out on both sides of the Atlantic but was often not appreciated in the other country. With declining resources for research funding in both countries, maximum cooperation and coordination is imperative. At the very least there is need for a Centre to act as clearinghouse for information research, to store and organise the data and disseminate the findings. Researchers must exchange experience and research methodology. In particular, methodologies expensive to design should not be reinvented when they are made freely available by the inventors. The added benefit in using common methodologies is to encourage comparable results. As competent researchers are at such a premium in both countries, it was suggested that maximum use of their capabilities might be fostered by holding a series of "Gordon-type" conferences. The paucity of research funding in both countries was deplored and some attention given to how more finances might be made available by government agencies and by the private sector. In the US large industrial firms have made contributions already and might do so increasingly in the future. In the UK the new Confederation of Information and Communication Industries (CICI) has made similar promises in its draft terms of reference.

Research funders in both countries must keep in touch not only to exchange research results but also to identify parallel and possibly joint research projects, and thus optimise the research resources in their respective countries.

Conclusions and recommendations

In the last session, in the light of the debate recorded above, Professor Saunders presented draft conclusions and recommendations to the Seminar. These were discussed and final wording approved as they appear in the summary section of this report.

4. Future action

It was agreed that NCLIS and BLRDD would ensure that the Seminar report was disseminated as widely as possible in both countries and particularly brought to the notice of agencies able to take action on the recommendations. NCLIS and BLRDD would keep in touch to monitor progress of action on the recommendations, and the same group that attended this Seminar would be reconvened at a suitable date to review progress. In addition other joint meetings on more specific topics would be considered, as would the exchange of research personnel.

References

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(3) Government Response to the ITAP Report on "Making a Business of Information". 1984. HMSO. ISBN 011 513757 2.

(4) "Value of the Energy Data Base". Department of Energy, USA. March 1982. King Research Inc. DOE/OR/232-1, DE 2014250.

Appendix B

Seminar timetable

Friday 27 July	from 16.00	Registration
	18.00	Reception
	19.00	Dinner
	20.30	Welcome - Sir Harry Hookway
Saturday 28 July	08.00	Breakfast
Chair: Sir Harry Hookway	09.30	Keynote talk on US Research - F W Horton
	10.15	Discussion
	11.00	Coffee
	11.30	Keynote talk on UK Research - B J Perry
	12.15	Discussion
	13.30	Lunch
	15.00	Session 1: Access to Information - Dr T Carbo Bearman
	15.30	Discussion
	16.00	Tea
	16.30	Session 2: Technology, Innovation and Productivity - D King
	17.00	Discussion
	19.00	Dinner

Sunday 29 July	08.00	Breakfast
Chair: Ms E Hashim	09.30	Session 3: Management of Information - Dr D Lewis
	10.00	Discussion
	10.30	Coffee
	11.00	Session 4: National and International Information Policy - Professor A J Meadows
	11.30	Discussion
	13.00	Lunch
	15.00	Plenary Session 1: A chance to discuss topics arising from keynote papers and topic sessions. Led by M White
	16.00	Tea
	16.30	Plenary Session 2: Further discussion. Led by R Taylor
	18.30	Reception
	19.30	Seminar Banquet
Monday 30 July	08.00	Breakfast
Chair: Ms E Hashim	09.30	Plenary Session 3: Further debate on the topics identified as important to UK and US information policy. Led by R Taylor and M White
	10.30	Coffee
	11.00	Summing up: Recommendations for Research and for UK/US cooperation - Professor W Saunders
	12.30	Close of Seminar
	13.00	Lunch (optional)

Appendix C

Issue topics

ISSUE TOPICS FOR SESSION 1 (DR BEARMAN)

ACCESS TO INFORMATION

1 The concept and role of information in public and private sector operations: translating "information assets" as part of strategic planning into reality; e.g., is it possible to capitalise information resources as an asset on the balance sheet?

2 Awareness of information resources management (IRM) by top management.

3 Access to external data (outside organisational walls).

4 De-centralising microcomputers to end users through local area networks.

5 Access to government information: enhancing the role of the private sector to foster national productivity while protecting the right of ready access to public information for citizens.

6 Barriers and resistance to information technologies for significant components of the population.

7 Limits on access to information to protect privacy rights; e.g. computer hackers, national security, and other over-riding interests.

8 International exchange, including restrictions, transborder data flow.

ISSUE TOPICS FOR SESSION 2 (D KING)

TECHNOLOGY INNOVATION AND PRODUCTIVITY

1 What are priority measures of productivity?

(1) Productivity of resource components such as equipment and people.

(2) Productivity of information services and systems.

(3) Productivity of community being served.

(4) What are the relationships among these levels of productivity?

2 What effect does technology have on productivity of information workers?

(1) Is there evidence that technology does increase productivity of information workers, or in the long run does it merely share resources among components?

(2) What competences are necessary to utilise new technology optimally?

(3) How should these competences be attached: i.e. education, continuing education, training or experience?

3 What effect does technology have on productivity of information systems and services?

(1) What evidence exists concerning the effect of technology on productivity of systems or services?

(2) How can technology yield greater productivity of systems or services?

4 What effect does technology have on users of information systems or services?

(1) What evidence exists concerning the effect of technology on the productivity of users?

(2) How can one relate information services or systems productivity to user productivity?

(3) How can one measure productivity of non-professional use: i.e. the value of information for personal use, education and so on?

5 How can adoption of innovation increase productivity at all the levels above?

(1) How can innovation be identified?

(2) How can we optimise diffusion of innovation?

6 What gaps are there in our understanding of the relationship between technology and user components, information systems or services of information use?

(1) What is the value of technology?

(2) What is the value of education to information workers and to information users?

ISSUE TOPICS FOR SESSION 3 (DR D LEWIS)

MANAGEMENT OF INFORMATION

1 Changing economy scenes - growth of service industry.

2 Information as a resource - perception
- cost
- price
- value.

3 Managing the information resource - corporate memory.

4 The information manager - yesterday
- today
- tomorrow.

5 Education and training implications.

ISSUE TOPICS FOR SESSION 4 (PROF MEADOWS)

NATIONAL AND INTERNATIONAL INFORMATION POLICY

1 The organisation of information planning - the problem of fragmentation.

2 Cooperation and competition in national/international information planning.

3 Interaction in planning for different communications media.

4 Planning new skills - deciding on what is needed.

5 Planning for change in the educational system.

6 Productivity and manpower requirements - forward planning.

7 Factors affecting the implementation of information policies.

To stimulate discussion under this heading it might be best to concentrate on general questions in the talk itself (e.g. under the first item above we must ask: is it possible in either the UK or the US for planning to be anything except fragmentary?). Specific examples, case studies, etc., would be best fed in by the individual participants.